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Knudsen, Per; Andersen, Ole Baltazar; Stenseng, Lars; Moreno, Laura ; Berry, Phillipa A. M.; Thibaut, Pierre; Tornfeldt Sørensen, Jacob

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LOTUS— Preparing Land and Ocean Take Up from Sentinel-3

Per Knudsen (1), Ole Andersen (1), Lars Stenseng (1), Laura Moreno (2), Phillipa A.M. Berry (3), Pierre Thibaut (4), and Jacob Tornfeldt Sørensen (5)

(1) DTU Space, National Space Institute, Geodesy, Kgs. Lyngby, Denmark (pk@space.dtu.dk), (2) STARLAB, Barcelona, Spain, (3) DMU, Leicester, UK, (4) CLS, Toulouse, France, (5) DHI, Hørsholm, Denmark

The objective of the new EU FP7 LOTUS project is to support the development of GMES by developing applications of Sentinel-3 to complete the space observation infrastructure that are designed for land and ocean monitoring for GMES. Sentinel-3 is the GMES space component for monitoring the oceans. The SRAL instrument onboard Sentinel-3 is a radar altimeter that will provide observations of sea-surface and land-ice topography, in continuation of altimeter missions such as ENVISAT, Jason-1 and Jason-2. Furthermore, the SRAL instrument will operate in a SAR mode and provide along-track high-resolution heights of the sea surface in the open oceans, in the coastal seas, in-land water and sea ice areas. The SAR capability is a new feature and no data products based on this SAR mode data are provided or used operationally. New methodologies and new data processing chains need to be developed to prepare the take-up of the GMES Sentinel-3 data.

The LOTUS project will develop new methodologies, data processing chains, and applications of the SAR mode data for the high resolution sea surface heights, wave heights and wind speeds in the open oceans, coastal seas as well as in sea ice covered regions for operational marine services. For the operational land services, the LOTUS project will develop new methodologies, data processing chains, and applications of the SAR mode data for the in-land water levels in rivers and lakes, soil moisture, and snow water equivalents. In turn, the new products based on the SAR mode data will support operational services for emergency response and security in the events of, e.g., storm surges and flooding. The new land products will provide valuable information about the hydrological cycle and support services on monitoring hydrological parameters for climate change. This poster presents the project objectives and some preliminary results.